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Air Corps NEWS LETTER

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VOL. XX AIR CORPS NEWS LETTER NO. 17.
Information Division, Air Corps — September 1, 1937 — Munitions Building, Washington, D.C.

The chief purpose of this publication is to distribute information on aeronautics to the flying personnel in the Regular Army, Reserve Corps, National Guard and others connected with aviation.

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THE EFFECT OF FLIGHT ON THE MIDDLE EAR

Notice to Flyers.- If you have reached the stage - like some of our old-timers - to whom the roar of a twin-row sounds like the gentle purr of a kitten, don't bother with this article now; you should have read it many years ago. On the other hand, if you are just beginning to have difficulty in hearing some compadre say: "It's quitting time," or "What will you have?", there may yet be time to save you if you read and profit by this article. It was submitted by Major Malcolm Grow, Chief Flight Surgeon, Office of the Chief of the Air Corps, in the belief that it would be of interest to Flight Surgeons and of benefit to pilots and passengers in the Air Corps - those who have the tenacity to read a technical paper. For those who cannot hurdle "trauma" or "Aero-otitis media," we suggest that you read the following chapters at least - "Symptoms" and "Treatment."

The Editor.

THE following excerpts are quoted from an article titled as above, published in the Journal of the American Medical Association by Captain Harry G. Armstrong, M.C., Flight Surgeon (Director of Physical Research Laboratory, Wright Field), and J.W. Heim, Ph.D., Assistant.

All Flight Surgeons have been requested to read and study the article, and this partial publication in the News Letter is deemed advisable in order that Air Corps personnel may have personal knowledge of the effects on their ears of altitude changes and what may be done to alleviate or avoid the same.

These excerpts have been compiled by the Medical Section, Office of the Chief of the Air Corps, in the hope that by bringing this matter to the attention of Air Corps personnel they will cooperate with the various medical officers and make a concerted effort to lessen the ever increasing number of cases of impaired hearing and other permanent effects primarily induced by the repeated trauma of altitude changes.

"Those familiar with aviation medicine are well aware that airplane pilots suffer more frequently from disturbance of the middle ear than from all other occupational diseases combined.

The phenomenal growth of commercial air transport, which carried approximately one million passengers in 1936, makes this problem of interest and importance to the general medical profession, for airplane passengers are exposed to the same influences as the pilots during flight, and in most instances are much more adversely affected.

DEFINITION

Aero-otitis media is an acute or chronic inflammation of the middle ear caused by a pressure difference between the air in the middle ear cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, ringing in the ears and deafness.

CAUSE

Aero-otitis media is due to the lack of ventilation of the middle ear during changes of atmospheric pressure to the extent that the middle ear is injured due to: one, a failure to open the eustachian tube voluntarily when necessary, the other the inability to open it.

Failure to open the eustachian tubes, which lead from the middle ear to the throat, during changes in altitude in aircraft flights is most often due to ignorance of the necessity to do so, but may be due to carelessness or to being asleep or may arise from the influence of analgesics or anesthetics or from coma. The first two of these instances usually occur among inexperienced pilots and passengers, the third in sleeper airplanes, and the last group in ambulance planes.

Inability to ventilate the middle ear voluntarily is much more prevalent than is generally recognized. Some of the most frequent causes of blocking of the eustachian tubes are acute and chronic infections of the upper respiratory tract, nasal obstructions, sinusitis, tonsillitis, tumors and growths of the nose and nasopharynx, paralysis of the soft palate, enlargement of the tubal tonsil, inflammatory conditions of the eustachian tube or middle ear, scar tissue about inner end of the tube following adenectomy, and malposition of the jaws.

The effect of malposition of the lower jawbone in relation to blocking of the eustachian tube was first reported by Costen and later applied to aviation by Willhelmy. They showed that in individuals who had lost many teeth wore ill

fitting dental plates, had marked overbite, malocclusion, or worn molar teeth either unilateral or bilateral or with any other condition in which there was a shortening of the vertical position of the lower jaw, a compression blocking of the eustachian tube was likely to occur from a relaxation of the surrounding soft tissues.

SYMPTOMS

The symptoms of aero-otitis media depend on the duration, frequency and severity of the injury sustained.

Aero-otitis Media, Acute.-- Subjective Symptoms: Positive pressures in the middle ear are perceptible in consciousness to most individuals as a feeling of fulness in the middle ear. As the pressure increases the feeling of fulness is distinct and somewhat annoying and affects the hearing by imparting a distant sound and a lessened intensity. Very high pressures usually increase the discomfort and may be accompanied by ringing in the ears. The latter is of a steady hissing or roaring character or crackling and snapping. In some individuals there may be actual pain and vertigo of a mild nature. At extreme pressures in the middle ear there is increasing pain, ringing in the ears and vertigo, which finally becomes unbearable.

In normal cases about 15 mm. of pressure is sufficient to force air out through the eustachian tube, which relieves the pressure in the middle ear and consequently the accompanying symptoms. However, this relief is initiated by an annoying 'click,' which is both felt and heard as the drums snap back to normal position. In blocking of the tube the pressure required to force it open varies with the degree of stoppage. In these cases the pressure may be relieved gradually over a period of time instead of instantaneously, and a greater amount of pressure remains in the middle ear after the tube has again closed.

In descent, in which the atmospheric pressure is increasing and the pressure in the ear becomes negative, the symptoms are the same as already described, except that the pressure is never relieved through its own force acting on the eustachian tube because of the flapper-valve like action of the latter. For this reason the greatest difficulty usually occurs during descent in aircraft, and the highest pressure differentials have been seen and studied experimentally under this condition. In even medium negative pressure the pain in the ear is severe and resembles that of acute inflammation of the middle ear. The ringing in the ears is marked and there is usually vertigo or giddiness with beginning nausea. In well marked negative pressure the pain is very severe and radiates from the ear to the side of the head, the parotid gland and the cheek. Still lower pressures produce agonizing pain, which seems to localize not in the ear but deep in the substance of the parotid gland, which is located just in front of the ear.

Deafness is marked and vertigo and head noises usually increase, but the latter may disappear. At very great negative pressure the eardrum ruptures.

This occurrence is a dramatic episode in which the patient feels 'as though hit along the side of the head with a plank,' a loud explosive report is felt and heard in the affected ear. There is a sharp piercing pain on the affected side, giddiness and nausea become marked and collapse or generalized shock follows. With rupture of the eardrum the acute pain quickly subsides, but a dull ache persists for from twelve to forty-eight hours. Hearing is distinctly diminished and vertigo and nausea may persist for from six to twenty-four hours.

With both positive and negative pressures, voluntarily opening the eustachian tube will immediately relieve all acute symptoms; but it is to be remembered that with extreme negative pressures it becomes impossible to overcome this by muscular action, and relief is obtained only by a return to a higher altitude. In cases in which the pressure has already produced injury, opening of the eustachian tube will not relieve the symptoms of pressure injury, and they persist until recovery has taken place. Pressures that may be only uncomfortable at first finally become painful. Moderate injury to the ear is followed by a sense of soreness in the ears and deafness lasting from one to twelve hours. Severe injury is followed by pain, deafness, vertigo and ringing in the ears for from four to forty-eight hours. The pain is similar to that of abscess of the middle ear, and the ringing in the ears is usually of a hissing or roaring character, the deafness of the conduction type and qualitative as well as quantitative.

Adero-Otitis Media, Chronic.-- Subjective Symptoms: In these cases there is a 'full and stuffy' feeling in the ears and difficulty in 'clearing' them. There is a partial loss of hearing, which is either unilateral or more pronounced on one side, and in some instances may vary from day to day. Head noises may be present, but rarely vertigo or pain. The condition is worse after flights, during acute infections of the upper respiratory tract, during changes of weather and during fatigue or debilitated states.

TREATMENT

Methods for Prevention.-- Those who take up aviation as a profession are and should continue to be carefully tested to determine if the eustachian tube is

(Continued on page 18).

RESERVE OFFICERS' CAMP AT SCHOEN FIELD

By Captain Fred W. Sommer, 309th Air Reserve Training Squadron

JULY 31, 1937, marked the closing of one of the most successful and instructive 14-day active duty camps for the Air Corps Reserve officers at Schoen Field, Fort Benjamin Harrison, Indiana.

Under the careful supervision and guidance of the Commanding Officer of Schoen Field, Captain Milton J. Smith, Air Corps, we were able to get our fill of flying for once and to leave with a feeling that we had a very instructive camp.

Captain C.F. Cornish, Air Reserve, the senior officer of the 309th Training Squadron, assumed command and appointed his staff, as follows:

Captains Fred W. Sommer, Operations Officer; Frank S. Estill, Engineering Officer; Charles E. Halstead, Supply Officer, and 2nd Lieut. Bernard M. Lloyd, Adjutant.

With a training itinerary published by Captain M.J. Smith, we planned our training so that we were able to obtain as much instructive flying and training as possible. With only three each PT-3A and BT-2B airplanes, of which only one from Schoen Field was fully equipped with instruments and radio, we decided to concentrate on instrument flying.

The mornings from 7:15 to 11:45 were devoted to flying, and the afternoons to class room work and lectures. We also used the week end for extended cross-country flying.

As all of the pilots had some previous instrument flying instruction, we endeavored to qualify as many for the Instrument Flying Test as possible. The average pilot time in instrument flying at this camp was 12 hours, 5 minutes. Two pilots passed the test.

The average pilot time in Air Navigation was 7 hours and 40 minutes; Formation Flying, 7 hours, 30 minutes; Night Air Navigation and other flying, 1 hour, 55 minutes. Average total pilot time, 33 hours and average total time in the air, which included pilot, safety pilot and observer time, was 50 hours and 37 minutes.

Great stress was placed on punctuality of take-off and landing, according to the time on the operations orders. In order to emphasize this point, we instigated a penalty system by which the pilot was fined ten cents for being late on take-off or landing, late to classes, leaving switches on, or not following operations orders. The money thus collected was used in furnishing a luncheon at the end of the camp for the enlisted men. It was not so much the fine that hurt the offender, but the kidding he received from his fellow officers. However, all the pilots entered into the spirit of the game and, as a result, there were very few victims near the end of the camp.

Two nights were devoted to night flying. All pilots soloed at night at the Indianapolis Municipal Airport, and each took a one-way night cross-country flight to Louisville, Ky.

There were no forced landings or accidents to airplanes or personnel; in fact, we did not even have a flat tire.

The enlisted men were efficient and hard working, and we always had all the airplanes on the line ready to take off at the prescribed time. All the enlisted men entered into the spirit of giving all the flying to the Reserve officers that was possible by keeping the airplanes in excellent condition.

All our instrument flying, extended air navigation and night flights were made with the three BT-2B airplanes.

Schoen Field has been greatly improved in the past two years with the help of a P.W.A. project and the supervision of Captain M.J. Smith. As a result, all types of Army and Navy airplanes are landing there. It is hoped that more of the Army pilots will include Schoen Field in their itinerary for their air navigation flights.

We can all truthfully say that during this camp we received all the flying and constructive military knowledge we could take - and then some - in the 14 days allotted for active duty training. At the close of camp we left for home and a good rest, hoping that we will have another camp next year as successful as the one just completed, but with more modern airplanes.

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37TH ATTACK SQUADRON LAYS SOME SMOKE

The 37th Attack Squadron, stationed at Langley Field, Va., worked a co-operative mission with the Chemical Warfare School at Edgewood Arsenal, Md., on August 2nd and 3rd. Two missions were flown, the first one consisting of a smoke screen laid around a boat with subsequent dye attacks made through the screen on the boat. The second mission was reminiscent of the recent West Coast Maneuvers. It was a 3:30 a.m. reveille with a 4:30 a.m. take-off. On this mission three ships laid a smoke screen to protect a landing party from a boat anchored in the bay. The other three ships attacked the landing party through the screen using dye.

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During July, the Engineering Department of the San Antonio Air Depot overhauled a total of 19 airplanes and 58 engines and repaired 45 airplanes and 22 engines.

ACTIVITIES AT MOFFETT FIELD, CALIF.

UNDER the recent shake-up of Observation units, Major Horace S. Kenyon, Jr., Air Corps, headed a group of seven officers transferred from Brooks Field, Texas, to Moffett Field, Calif., in June. Major Kenyon assumed command of Moffett Field, and Captain Courtland M. Brown took over the command of the Ninth Air Base Squadron. First Lieut. Lorry N. Tindal became Post Operations and Air Corps Supply Officer, and 1st Lieut. Robert Alan, Adjutant and Post Exchange Officer.

Second Lieuts. Herbert D. Schultz, Jr., John A. Pechuls and Russell L. Flolo, Air Reserve, were all assigned to the 82nd Observation Squadron, organized under Major Bushrod Hoppin, and composed largely of the personnel from Brooks Field.

The entire command now consists of the 82nd Observation Squadron, the 9th Air Base Squadron, and attached Medical and Quartermaster troops, totaling 305 enlisted men and 15 officers. The air strength of the field is made up of two O-43's, one O-31A, one BT-2 and one PT-3.

Tow target work with the surrounding Coast Artillery stations has formed the bulk of missions, all of which have been flown by Lieuts. Pechuls, Schultz and Flolo. With the recent arrival of 2nd Lieuts. Leonard Hudson, Jr. and Frederick L. Moore, Air Reserve, graduates of the Advanced Flying School, Kelly Field, last June, relief is in sight. Second Lieut. Willard R. Lazarus, Air Corps, the only Air Corps Reserve officer to receive a regular commission as a result of last spring's examinations, has also arrived, and he was welcomed as a relief to officers well loaded with assignments.

Major Joseph J. Canella, Infantry, took over the Quartermaster position upon the departure of Major Joe S. Underwood, Quartermaster Corps, for Panama.

July was spent in organizing, settling down and becoming acquainted. The nine sets of officers' quarters on the field are all occupied, which means that any additional married officers will live in one of the surrounding towns. The bachelors are well situated on the post in the bachelor officers' quarters, with rooms to spare. The town of Mountain View is one mile away; Palo Alto, 10 miles, San Jose, 15, and San Francisco, 36 miles. A four-lane highway passes the gate of Moffett Field, so that going to town is a simple matter.

Relations with the civilian population are cordial. On July 21st, the people of Mountain View and Los Altos entertained the officers and ladies of the field at a dinner dance at the Los Altos Country Club, at which time Major Kenyon expressed the appreciation of the field for the welcome accorded. Frequent attendance by officers at Rotary and Chamber of Commerce luncheons helps maintain the good feeling that now exists. Major Canella, the Post Quartermaster, is most adept at this type of maneuver.

From July 18th to 31st, the 316th Observation Squadron, commanded by Major Charles Harold Kruse, Air Reserve, was stationed at Moffett Field. The squadron brought its own ships - BT-9's and PT-3's, and flew from morning till night, conducting radio missions and gunnery on ground targets in the BT-9's.

From August 1st to 6th, the 367th Observation Squadron, under the command of Major John Clarence Gray, also flying their own ships, performed the same type of work. Both outfits received the highest commendation from the Post Operations Officer for their thorough training and excellent cocperation with the permanent installation.

On July 23rd, the 316th Observation Squadron entertained the officers and ladies of the post at a party, and on July 30th, the 316th Squadron joined the officers of the post in a party and dance.

The 367th Squadron was on the field for only five days before leaving to take part in the Fourth Army Maneuvers, and flew a very full schedule during that time. "Both Captain George E. Henry, Unit Instructor, and Majors Kruse and Gray are to be congratulated for the fine performance of the two squadrons," says the News Letter Correspondent.

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LIGHTER-THAN-AIR ACTIVITIES AT FT. LEWIS

July 20th marked the first flight in many years of a captive balloon at Fort Lewis, Washington. The operation was conducted by the newly constituted 3rd Balloon Squadron, which arrived June 19th at Fort Lewis from Moffett Field, Calif. This move terminated the activities of the 19th Airship Squadron, 55 men of which, together with four officers, constituted the nucleus from which the Third Balloon Squadron was organized. The remaining enlisted personnel was transferred to either the 82nd Observation Squadron or the 9th Air Base Squadron, both at Moffett Field, Calif. The TC-13 airship made its final flight from that station on June 2nd, and was at once deflated and placed in storage.

Pilots on duty with the 3rd Balloon Squadron, Fort Lewis, are Majors Clarence B. Lober, Michael E. McHugo, Elmer J. Bowling, Captain Haynie McCormick, Warrant Officer Robert E. Lassiter, Master Sergeants Ronald Short and Arvin Miller. Technical Sergeant Benjamin Cheska and Staff Sergeants Harth, Harper and Fosse

(Continued on Page 7).

"AND I LEARNED ABOUT FLYING FROM THAT."

Robert A. Winston, in the July 15th issue of THE SPORTSMAN PILOT and under the caption of "Night Formation," writes most interestingly regarding several illusions he experienced during the course of a night formation flight. In an editorial note prefacing the article, it is stated:

"Many pilots have had experiences similar to the one Mr. Winston reports, but he was the first to admit it. This aroused so much interest in the Navy that the Bureau of Aeronautics made an investigation of the phenomenon. In case you do any formation night flying just keep in mind what happened to the author."

Mr. Winston's article is reprinted in the News Letter through the courtesy of THE SPORTSMAN PILOT, and is as follows:

We took off from North Island at dusk. Beale, in Number Seven, was leading the section. Denvers was on the left in Number Eight and I was on the right in Number Nine. Banking sharply to the left to avoid the three-hundred-foot ridge along Point Loma, we circled the field for altitude, waiting for a nasal voice to come through in the routine radio test: "Fighting One Group from Lexington Base: test. Acknowledge." And one after another we answered: "Lexington Base from One Fox Seven, aye aye!" "Aye aye from One Fox Eight." "Nine, aye aye!"

This formality over, Beale led us down the Strand past Coronado to Border Field, practicing cross-overs from V to echelon, circling over San Ysidro for a few moments to look at the garish neon lights of Tijuana across the Border, then heading east to Otay Mesa. Here he turned the lead over to Denvers, who led the way around between San Diego and the mountains to Camp Kearney, where Denvers turned the lead over to me. Over Camp Kearney, I broke up the section for the usual period of practice landings, signaling for a rendezvous half an hour later and turning the lead back over to Beale, who headed for North Island.

The night was cool, but I had worn a heavy flying suit over my flight jacket and felt very comfortable. As we passed north of San Diego, I eased back a few yards to enjoy the brilliant pattern of the myriad of twinkling lights below.

This was the way night flying should be, I told myself. Single seaters were the only thing - nobody riding behind you to worry about in case of trouble - hop over the side if the engine quit, or even set 'em down on a strip of highway if the landing light wasn't on the blink. Flying these stubby fighters was a real treat after the sluggish observation ships we had trained in, and I had never felt more comfortable while flying at night than I did then. The ship responded to slightest touch of the controls or throttle, which helped ease the strain of the constant jockeying for position necessary in cruising along at a hundred knots only ten paces from the leader.

After we passed San Diego, Beale circled North Island and headed west. The air grew bumpy as we crossed over the Bay and I opened my interval a few yards, watching Beale's ship closely to avoid hitting it as he surged up and down in the rough. The outline of Beale's ship grew dimmer as I increased my distance and step-up, so I shifted my gaze from the ship itself to the bright white gleam of the turtle-back light on the top of the fuselage. Out of the corner of my eye I saw the lights of the city crawl slowly past below me and disappear astern. Ahead and to the right were the lights of La Jolla, jutting out into the dark expanse of the Pacific.

The Western sky had become overcast, merging with the sea to form a solid pall of inky blackness which obliterated all suggestion of a horizon. Against this formless background Beale's ship now seemed suspended in space. Every indication of motion was blotted out by the absence of anything above or below his ship which might indicate direction, speed or distance. Even the interval between my ship and Beale's seemed altered to some strange new dimension. When he decreased his speed with the throttle, the ship ahead did not seem closer, but merely larger, and when he increased his speed, instead of seeming farther from me, it only seemed smaller. It was like the optical illusion of looking at one of those trick drawings which reverses itself after you stare at it for a few seconds.

I blinked my eyes, and the illusion disappeared, but in a few moments it returned. I blinked again, but it remained. I shook my head, and again things were normal; distance was no longer size, but distance, as it should be.

Staring intently at the white light ahead of me, I concentrated on the task of keeping the interval between the two ships from changing. This time I felt it with a distinct snap as the dimensions reversed themselves. Irritated, I jerked my head around and looked back over my right shoulder at the lights of the city behind me. Instantly my sense of orientation returned; my plane was no longer suspended in space, but moving forward.

Although my backward glance had been brief, I looked ahead again just in time to avoid hitting Beale's ship, which had been thrown up in front of me by a violent updraft. This would never do, I realized. Background or no background,

I must keep my eyes where they belonged or I would be in real trouble.

A quick glance over at Denvers' ship showed me that my own interval was too close, making an uneven formation. The second plane in the section always set the interval, so I obediently eased my throttle and dropped back a few yards until I was even with Denvers.

A few seconds later the other two ships banked up in a right turn. I started to follow, but the controls felt queer. Glancing at the turn-and-bank indicator, I saw that the pointer indicated a left turn, while the ball showed a right bank. No help there, I thought; Beale must be skidding his turn. Soon it became apparent that I was falling behind the others, who were above and ahead of me. I advanced my throttle, but the distance increased. Soon I was in a vertical bank, but still they were pulling away from me.

Desperately I jammed on full gun, past the throttle-stop, in an effort to catch up. But still they pulled ahead of me. A glance at my airspeed indicator showed 130 knots, with the speed increasing. Still the inky blackness gave me no hint of my direction. The other two ships were now banked up vertically above me. My feeling of helplessness changed to resentment. What was that damned fool Beale trying to do! A wing-over? Of all the crazy things to do at night! I reached for my microphone to protest.

Swiftly the other two ships drifted away and disappeared above me. A lone star appeared dead ahead over my engine cowling. Suddenly I felt the sickening, lost, suspended-in-space sensation which precedes a whip-stall. My mind flashed ahead to the consequences: a vertical climb . . . the sudden loss of flying speed which would follow . . . the violent forward lurch of the plane from the weight of the heavy engine in its nose... the rending crunch as the engine would be snapped off its mountings. . .

Frantically I shoved the stick all the way forward in an attempt to recover from the stall, but instead of levelling off into normal flight, the ship behaved as if possessed; the controls stiffened,the wires screamed and the engine howled like a thousand devils. My goggles were snatched from my head as if by an unseen hand and the wind tore at my eyes. I felt the safety belt dig into my thighs and the blood bulging the veins of my head, and knew that I had gone over on my back and that the ship was in inverted flight.

This was the first indication of my true predicament that I had had for several seconds. Fortunately the safety belt was fairly tight, and I could still reach the rudder pedals with my toes. Blinded by the terrific gale that beat into my eyes, I instinctively went through the motions of a half-roll, easing the throttle at the same time. The high-pitched scream of the wires gradually descended the scale, the gale died down and my sight returned enough for me to see a glow which marked an unnaturally high horizon.

Steading down on this, I glanced at my instruments: air-speed 170 knots, altitude 200 feet. Quickly I jerked the stick back and the black horizon dropped abruptly beneath me to reveal the lights of San Diego dead ahead. I had almost plowed straight into the ridge of Point Loma.

Only then, with the realization of the fate I had so narrowly escaped, did fear set in. I felt suddenly cold and weak. The thought of what had almost happened was repugnant, and in a few seconds it grew like an enormous, intangible thing of appalling proportions, as my mind tried to disbelieve it. My knees were shaking so hard that I could hardly keep my feet on the controls.

An insistent voice in my ear-phones recalled me: "One Fox Nine! One Fox Nine from One Fox Seven! Acknowledge!"

Mechanically I lifted the dangling microphone and forced myself to speak: "One Fox Seven from One Fox Nine: my goggles blew off. Am returning to base. Acknowledge."

"One Fox Seven, aye, aye."

My mind leaped to the new task. The lights of North Island were beneath me and my engine was purring along as smoothly as if nothing had ever happened. The whole incident seemed far away, impossible. I felt warm again, and my knees stopped shaking. Wiping my eyes with the back of my glove, I hunched forward to take advantage of the scanty protection offered by the windshield and scanned the horizon.

Far above me, the other two planes were circling the field together. Off to my right and below me, a division of Scouting Four was breaking up down over the Strand. Violating all course rules, I cut in ahead of them and nosed down towards the flood light at the end of the landing mat. I nursed the ship along in a power glide, eased it down until the wheels touched, chopped the throttle back, and rolled to an easy stop. Then, after I was safely down, my knees began to shake again so violently that I could hardly taxi back to the hangar.

My mechanic stared at me curiously as I dragged myself out of the narrow cockpit. "Everything all right, sir?" he asked as he extended the inspection sheet for me to sign.

"Yes", I answered slowly, "everything's all right. But you very nearly lost your airplane tonight."

"How was that, sir?"

For a long moment I looked back over my shoulder at the black pall over Point Loma. "I don't know," I replied vaguely. "My goggles blew off." Ab-

sently I signed the inspection sheet and walked slowly away towards the squadron office. The ground felt strangely warm and comforting under my feet and the lights seemed unusually bright and pleasant.

A few minutes later the others hurried up. "What the devil happened to you?" demanded Beale. "Why did you run away from us?"

"Run away from you?" I cried angrily. "It's the other way around! Why did you go into that wing-over? You nearly spun me in!"

"What wing-over? What are you talking about?"

"Don't try to give me that stuff! You know well enough. When we were headed west over Mission Beach. You went into a right wing-over, and I nearly did a whip-stall trying to keep up with you. I damned near went in before I got straightened out."

"But we didn't turn right!" protested Beale. "We turned left!"

"Yeah," said Denvers, "and I looked out and saw you banked up on your side. You hung there a minute, then dived out under us like a flash. That was the last we saw of you until we heard you over the radio and saw you coming in to land."

I must have paled visibly. "Then you never turned to the right?"

"Of course not," said Beale. "I was about to bring us home, before you busted up the formation. We didn't know where the devil you had gone, till you finally answered after I had called you about five times."

"Then I was headed straight down, instead of up", I said, shuddering.

"What do you mean?",asked Denvers.

"I felt like I was about to do a whip-stall," I said, "so I pushed over, but instead of heading straight up, I must have headed straight down. I thought I saw a star dead ahead, but it must have been a light on the beach."

"You mean you pushed over on your back from three thousand feet?" asked Beake incredulously.

"Yes," I answered faintly, "and with full gun."

"Great Fish!" said Denvers. "Then you did an outside loop!"

"Just half of one; I managed to roll out of it at the bottom."

"Well, if that's the case,"drawled Beale, "from now on you're just living on borrowed time!"

"Fine damn thing!" said Denvers facetiously. "We'd never have found you. We'd have been out there all night dropping flares on the water."

"I guess you would. I must have had close to three hundred knots on the way down."

"How on earth did you ever get mixed up like that?", asked Beale.

"I don't know. I could have sworn you were turning the other way."

"It's easy to get confused on a dark night," said Denvers. "One night down at Pensacola we were flying cross-country formation to Mobile, and I got balled up as we crossed the bay. When we got there, I looked out and there was Mobile cocked up at a forty-five degree angle. 'Great Guns!' says I, 'is Mobile built on the side of a hill?' But it was me who was banked up on my side, as I found when I spun out of the formation."

"Yes, that's it; that's exactly what happened to me."

We hung up our flight gear and started out into the night, walking along silently for a few moments. Suddenly I realized for the first time how close I had come to having my life snuffed out like a dropped candle. I could almost see the others sorting out my jumbled personal effects to ship home. "By the way," I said absently, "the keys to my trunk are in the top drawer of my dresser. Don't go busting it open."

"Say, what are you mumbling about?" asked Beale.

"Nothing," I said, snapping back with a start. "Come on; let's eat."

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Lighter than Air Activities at Ft. Lewis

(Continued from Page 4).

also accompanied the balloon squadron in the move to its new station.

All those interested in lighter-than-air activities regret the passing of the airship and its useful activities in the Air Corps picture. In final tribute to the TC-13, a brief summary of its achievements is perhaps in order.

This airship was in commission just over four years, during which time it flew 3819 hours. The longest distance covered was 1854 miles, which was flown at 65 miles per hour air speed and adverse wind over much of the journey. At 40 m.p.h. it had a computed still air range of 3,500 miles. The longest flight in point of time was slightly over 76 hours. This flight was terminated on account of weather, and at that time over 500 gallons of fuel remained. This was probably the first airship constructed in which actual performance exceeded that laid down in specifications.

It is interesting to note that the overall design safety factor was four times that of many large rigid airships, which proved its value when the TC-13 outrode a storm, during which wind velocities exceeded 65 miles per hour and great turbulence existed.

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ATTENTION: As previously stated, the News Letter most cordially welcomes stories from pilots under the heading: "And Learned About Flying From That."

AIRPLANES DO CRASH

By Captain Herbert B. Wright, Flight Surgeon
37th Division Aviation, Ohio National Guard

Is there anything that you can do about that? Indeed there is, if you are anywhere near the scene of the accident. During active service, on maneuvers, or during training periods, you may very well see an airplane crack-up and be near enough to render assistance. It seems worth while to inform the troops throughout the State in regard to some of the peculiar problems which may arise at the scene of an accident. The men of our own squadron are familiar with the best methods of rendering aid but chances are good that if an accident occurs it will be in territory remote from the landing field. Other troops will be the first on the spot and should be familiar with the best methods of supplying intelligent aid.

The first thing to do is to get the pilot and passengers out of the airplane for most frequently if the crash has been a severe one, the people involved have been pinned in the wreckage. A cool collected person will have one thought uppermost in his mind upon approaching the wreck, that is, the danger of fire. Gasoline from broken tanks is usually sprayed over the airplane and surrounding ground. Inflammable fabric, clothing,and nearby objects, become soaked with it and the slightest spark may create a tragic flaming pyre. The first important thing one can do is to organize the crowd about the wreck so as to prevent fire. There always is a crowd, you know, they seem to spring up from nowhere. Definite guards should be posted to keep the spectators back and see that no one in the crowd is smoking. Your efforts may then safely be concentrated upon removing the injured from the wrecked airplane. In doing this it may be necessary to saw through certain members of the structure. In this case, don't forget that danger of fire is still present and unless your hack saw is kept well oiled, it may create a spark which will touch off that lurking demon. Static sparks may also occur and should be guarded against as well as possible. Interfering with the battery or battery cables is a dangerous operation and should be left until the occupants have been safely removed.

When the pilot and passengers have been removed they should be carried a safe distance from the scene of the wreck and laid upon a blanket, coat, or whatever material is available. The cardinal rules in the treatment of shock then comes into force and must be followed implicitly. They include:

1. Keep the patient quiet.
2. Keep the patient warm.
3. Relieve the patient's pain
4. Stop the bleeding.

"Quiet" means motionless and in repose. It has often been said that as many airplane pilots have been killed by their being rushed from the scene of an accident in an unsuitable conveyance as have been killed by airplane crashes themselves. To deposit a seriously injured person in a passenger automobile and drive him at sixty miles an hour over rough roads to the nearest hospital is the worst possible thing that can be done. The further shock of rough handling, movement of fractured bones, increase in bleeding and uncomfortable positions is often just enough to cause fatality, whereas if the case had been handled properly he might have had a chance to survive. Just because a man's life is at stake don't think that action for action's sake is necessary. More help to the injured is given by considered and intelligent delay than can possibly come from hurried unconsidered "doing something about it". So lay the patient on the ground and keep him there until a suitable litter can be devised and an ambulance obtained, then, don't turn on the siren and try to imitate Barney Oldfield on the way to the hospital. The speed of the ambulance on any but the smoothest, straightest, roads should not exceed twenty miles an hour and ten miles an hour is often much better.

Warmth is of extreme importance to anyone seriously injured. The word "shock" means that the circulatory apparatus has been confused and become inadequate. The patient's extremities are cold; he is pale; and he is probably unconscious. Everything possible should be done to raise his temperature to normal. Even on hot days he should be covered and on the colder days he should have blankets and clothing piled on in profusion. If hot water bottles are availablo put them at each foot, at the sides of the body, and along the arms and legs. Be careful about burning an unconscious person with hot water bottles. It is easily done and just as easily avoided by placing a piece of thin clothing between the hot water bottle and the skin.

Relief of pain without the use of hypnotics can be accomplished in the field by immobilizing any fractured bones. Pain occurs when the broken ends of bones rub on each other. Shock is increased each time pain occurs. It becomes highly important, therefore, to splint the fractures immediately. Methods of splinting are well described in TR 112-5 and should be familiar to all. If a Thomas splint is available it should be applied immediately. The traction on the limb is important because when a bone is broken the muscular action tends to pull the fragments

past each other. If this muscular action is counteracted the job of properly setting the fractures later will be much simpler. If formal apparatus of this sort is not available, a fractured limb may be placed in a pillow, folded blanket or coat; a stick of wood or a piece of board which is placed on each side of the limb and extends throughout its entire length can then be held in place by an encircling piece of bandage or rope. This not only relieves most of the pain but allows the patient to be moved when the proper time comes.

Control of bleeding is of equal importance in combating shock. Most bleeding can be controlled by compression. Applying the first aid bandages (from the packet in the airplane or your own supply) directly over the wound tightly enough to furnish compression will stop all ordinary bleeding. This is the first method to be tried and the use of tourniquets should be reserved for bleeding that is not controlled by compression. A peculiar result in giving soldiers and others superficial education in first aid measures is the great desire it seems to create to use a tourniquet on every occasion. Don't show off your meager knowledge by applying a tourniquet to a finger superficially cut when a little pressure will do the work as well. Use pressure first and a tourniquet if that hasn't worked. Tourniquets should be applied around the upper thigh near the hip and around the upper arm near the shoulder. They are useless near the knee, anywhere on the lower leg or on the forearm.

If the patient is now lying down, is warm, his fractures splinted, and his bleeding stopped, you have done everything a doctor might have done except give him morphine. It is hoped that by the time all these maneuvers have been accomplished, the services of a medical officer will have been obtained. If the officer has arrived he will take charge and your responsibilities are ended as far as the patient goes. You should make sure, however, that the airplane is well guarded to prevent theft of instruments and other valuable Government property.

If the medical officer has not arrived your next move is to wait. What do you wait for? - For two things: First, and the most important, the partial recovery of your patient. You hope that his pulse will become slower and easier to feel, and you hope that his color returns, and that he regains consciousness. You should be willing to wait an hour for some of these things to happen before you consider moving him. The second thing you wait for is a proper litter and a proper conveyance in which to transport the patient to the nearest medical aid. Your patient must be transported slowly in a comfortable position without any more movement on his part than can be helped. If he has to be carried to a suitable road, that is much better than getting the ambulance bogged down in the same field in which the airplane crashed. In transporting the patient by litter, do it slowly and avoid jostling him about.

The above suggestions apply to automobile and similar accidents as well as to those concerning airplanes. It is hoped that should the occasion arise, they will be a factor in prompt and efficient first aid.-From Ohio Guardsman.

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2ND BOMBARDMENT GROUP PARTICIPATES IN JOINT ARMY-NAVY EXERCISE

Hq. and Hqrs. Sqdn., 2nd Bomb. Group:

The following officers and enlisted men of this organization departed from Langley Field, Va., for March Field, Calif., to participate in the West Coast maneuvers: Lieut. Colonel Olds, Captains McCormick, Williams, Caldwell, 1st Lieuts. Freeman, Mills, Tucker, Master Sergeant Davis, Tech. Sergeants Cobb, Moselander, Staff Sergeants Boutty, Boyles, Jolly, McDonald, Van Sweringen, Sergeants Dodson, Holmes, Ludwig, Corporals Smith, Vick, Wilson, Privates 1st Class Jester, Olive, Zaun, Privates Harbaugh, Hucik, Johnson and Trout.

20th Bombardment Squadron:

Two B-17's from this organization, with assigned combat crews, departed for March Field on August 1st to participate in the Joint Army-Navy Exercise No. 4.

49th Bombardment Squadron:

On August 1st, three B-17 Bombers of this organization, carrying 27 men, departed for the West Coast for participation in the Joint Army-Navy Exercise. Thirteen of the 27 men were officers. Eighteen other enlisted men were ferried to the West Coast by Transport planes and B-10B's.

21st Reconnaissance Squadron:

This Squadron has one plane participating in maneuvers being held on the West Coast, that plane being the YOA-5 Amphibian, better known as the "Big Duck." The crew members from this Squadron are Major Downey, Captain Fitzmaurice, Staff Sgt. John E. Morris, Corporals Paul Hamerla and George A. Kingston. In addition to the above, we also have 1st Lieut. John W. Egan, Privates 1st Class William A. Lentz and Kenneth G. Wickman, who are participating in the maneuvers with other squadrons.

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GUNNERY PRACTICE BY LANGLEY PURSUITERS AT VIRGINIA BEACH
By the News Letter Correspondent

The Eighth Pursuit Group returned to their home base, Langley Field, Va., on August 5th, after ten days of ground and aerial gunnery at Virginia Beach, Va.

This completed the third such encampment of the Group this year at the Virginia National Guard Airport, located on the State Rifle Range, and it was considerably simplified by being held between periods of encampments of Virginia National Guard units, thus utilizing their camp, tentage, et al, saving transportation and time in establishing camp, to say nothing of a lot of hard work.

To the members of the 8th Pursuit Group, Virginia Beach has become a second home address and to many the favorite. Rumor No. 01-76-7Z even has it that the barracks will be moved to Virginia Beach and the tents will be pitched at Langley. Virginia Beach offers one of the best beach resorts on the Atlantic Coast, and for those who aren't interested in the fine surf ... well, there's still the beach (and believe it or not, the ratio is at least two to one!!!)

Aside from the recreational facilities, working conditions are ideal at the National Guard Airport. The field, although somewhat small, has proven, with the help of a few axes and shovels and the necessary man power, adequate for our PB-2A airplanes.

The beach and sand dunes to the south of the rifle range, and only a few minutes by truck from camp, make an excellent ground range. The coast along this area is clear of small boats, making the area between Coast Guard stations excellent for aerial gunnery. This is quite a contrast with operations at home, where our ground range is on Plum Tree Island, and requires boat trips and a lot of 4:00 a.m. risings for the range detail, to say nothing of bologna and cold ham lunches, and an aerial range twenty minutes away by air.

As in the past, this encampment was utilized for long range altitude and mass firing on both aerial and ground targets. During our exercise in June-July, all combat crews were qualified, so we were able to concentrate on formation and long range firing. Several still-water inlets south of the airdrome offer excellent targets for mass firing. The advantage of preliminary mass firing on a water target is easily seen as the pattern of shots, center of impact, etc., can be readily seen by the pilots or by a single ship acting as observer.

As in previous instances, firing culminated in eighteen ships firing simultaneously on one 60' x 6' target, and flights of six ships firing on a 6' x 30' target. Our record of burning down such targets with tracer ammunition is still 100%. For the larger target, the Squadron of eighteen ships approached in three six-ship flights "strings" abreast, on the same level and about 150 feet apart. From this formation all ships could turn simultaneously to the right or left as the case may be, then dive simultaneously straight forward at the target. In either case the field of fire forward is clear of other ships in the formation, the only prerequisite being that all ships dive together and have plenty of ammunition with the empty case chutes stopped up to prevent ships to the rear from picking up empty cases.

This formation may be used on any size target, ground or aerial, the volume and concentration of fire being tantamount to complete destruction of the target. However, for a small ground target or small formation, simulated by a single towed target, better accuracy of fire may be obtained by having a larger interval between flights, the flights approaching in "waves" and beginning firing as the preceding flight ceases and starts pulling away. It must be borne in mind, however, that this firing is at fairly long range. All airplanes cease firing and pull out away from the echelon before passing the target.

At the present time we are on the alert, constantly scanning the silver screen for more concrete evidence of our firing accomplishments as recorded by Pathe News, our guests at the last encampment.

Daily missions of mass firing, aerial gunnery and interception problems continue at Langley Field, but, Oh!.... for a cool swim and a good sun bath or just a walk along the boardwalk.

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SHOULDER SLEEVE INSIGNIA FOR GHQ A.F.

The War Department recently approved the following shoulder sleeve insignia for the General Headquarters Air Force:

On a golden orange disk 2¾ inch in diameter, an ultramarine blue, three-bladed impeller, the curved surfaces emanating from the points of an imaginary ¾" equilateral triangle.

DESCRIPTION:

The design represents the GHQ Air Force:- the striking combat element of the Air Corps as originally organized into three wings. The action expressed by the three-bladed impeller is symbolic of speed, mobility, flight through space, and destructive power exemplified by the GHQ Air Force.

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NOTICE TO PILOTS:

Are you writing your story "And I Learned About Flying From That" for the News Letter? Your experience may help others - perhaps more than you think.

V-7462, A.C.

AUTOMATIC LANDING OF BIG ARMY PLANE ACCOMPLISHED

The Army Air Corps has just completed a series of history making experimental flights at Wright Field, Dayton, Ohio, in which a large Army cargo plane was landed several times under full automatic control. Utilizing a new device, perfected after two years of intensive research by Air Corps engineers, the plane was repeatedly landed under adverse wind conditions without any human assistance of any kind. The perfection of this device makes it possible to land a plane in a dense fog, in absolute darkness or under other adverse conditions. This development opens up a wide field of speculation as to the future of military and commercial planes guided and controlled by automatic devices.

The results of the Wright Field experiments are certain to attract wide attention from all persons interested in the safe navigation of the air and mark a notable extension of the field of automatic control of airplanes.

The automatic landings of the big cargo airplane were made with amazing accuracy.

Unlike other so-called automatic landing systems in which the pilot of the airplane or ground personnel actually through remote control directs the landing of the airplane, the Air Corps craft is landed without assistance from the human pilot of the airplane and also without remote control from the ground.

Air Corps officials stated that the closest other approach to fully automatic landing of which they have knowledge is a system being used experimentally by a civil agency on the West Coast, in which the pilot must constantly make adjustments during the landing procedure. Another method is that used in the British "Queen Bee" experiments in which the airplane is remotely controlled in flight and landed by an observer either on the ground or in an accompanying airplane, who must be able to see the airplane which is under radio control.

Air Corps officials said that their experiments and research have been conducted in order to arrive at fully automatic landing that removes the human element from the procedure of landing through fog and other adverse weather conditions which prevent visual contact from the airplane to the ground or from the ground to the airplane.

Aboard the big cargo airplane during the successful automatic landing tests were Captains Carl J. Crane, George V. Holloman and Mr. Raymond Stout, all of whom were, during the automatic flights and landings, nothing more than interested passengers, since no human hand touched a control once the automatic features were placed into operation.

With the Sperry gyro pilot flying the airplane headed in a southerly direction, the master automatic landing switch was closed over Dayton and from that instant until the final roll of the airplane headed borth on the runway at Patterson Field not one control was touched by the airmen aboard the airplane. With the exception of the Sperry gyro pilot, all of the electro-mechanic elements of the automatic landing system were designed by personnel of the Air Corps Materiel Division at Wright Field.

The automatic landing system as used in the recent tests at Wright Field shows promise of eliminating the possibility of human error in aircraft landings under conditions of poor weather. The Air Corps expects to conduct further experiments with the automatic system of landing to the end that additional refinements will make automatic landing an everyday occurrence in good weather as well as in bad.

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RESERVE OFFICERS TRAIN AT LANGLEY FIELD

The 96th Bombardment Squadron at Langley Field, Va., changed the nature of its activities with the start of the month of August. When the Y1B-17's departed for the West Coast Army-Navy Maneuvers, August 1st, the activities of this squadron were turned toward the training of the following-named Air Reserve officers who had reported several days previously for 14 days' active duty, viz: Major Ivor Massey, Captains William H. McAvoy, Eric Knue Shilling, 1st Lieuts. Winthrop H. Towner, Norman Lee Barr, Marvin C. Demler, Wilbur O. Riley and Lawrence S. Semans.

The training consisted of familiarization, navigation and bombing missions in PT-3A, BT-9A, B-10B and OA-4A airplanes. In addition, daily lectures on tactical subjects were given.

Considering the fact that the entire 2nd Bombardment Group was on maneuvers and the camp was very short of equipment and personnel, everything went satisfactorily until August 5th, when the only B-10B left in the Squadron ran into difficulties. The pilot ground-looped when landing from a bombing mission. There was no injury to personnel.

This sorry ending to an otherwise successful training period left no one so sad as the officers just reporting to the Second Bombardment Group for duty. They were hoping to get in a great deal of flying time in that plane before the Group returned from the West Coast.

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Some experience in your flying career which taught you a lesson may also prove one to others. Write about it for the News Letter under "And I Learned About Flying From That."

Biographies

LIEUT. COLONEL WILLIAM F. VOLANDT

Lieut. Colonel William F. Volandt, Air Corps, now on duty as Chief of the Procurement Section, Materiel Division, Wright Field, Dayton, Ohio, was born at Fort Assiniboine, Montana, October 8, 1879. He received his education in the grammar schools, high school and commercial school in Washington, D.C. For a period of six years, from October 6,1898, to October 7, 1904, he served as a Private, Acting Hospital Steward, and Sergeant in the Hospital Corps, U.S. Army. He then entered the service of the government in a civilian capacity, and for a period of nearly twelve years, from September, 1905, to March, 1917, he was on duty in the Quartermaster's Office at Fort Myer, Va., during the last five years of which he was the chief clerk of that office.

Commissioned a 1st Lieutenant in the Aviation Section, Signal Officers Reserve Corps, February 12, 1917, Colonel Volandt was, on March 25, 1917, assigned to active duty at Chandler Field, Essington, Pa., where he served as Adjutant until August 13, 1917, and as Ordnance Officer to November 12, 1917. During the entire period of his stay at Chandler Field, he performed the additional duties of Supply Officer, Signal Corps, and Quartermaster.

Transferred to Gerstner Field, Lake Charles, La., he was on duty as Supply Officer, Disbursing Officer and Signal Officer until January 8, 1919. He commanded the post for five weeks during November and December, 1918.

On December 14, 1918, Colonel Volandt reported for duty in the Office of the Director of Military Aeronautics, Washington, D.C., and he was assigned to the Supply Division and placed in charge of the Property Accounting Branch. From April 25th to August 7, 1919, he was Chief of the Finance Division, Supply Group. He served as a member of the Board of Contract Review and as a member of the Claims Board to October 10, 1919. He was Assistant Chief of the Liquidation Division, Air Service, from October 10, 1919, to April 9, 1920, and thereafter Chief of the Liquidation Division to October 13, 1920. He next served as Chief of the Finance Contact Division to November 25, 1921. On September 21,1920, he was appointed Contracting Officer for the Air Service at Washington, D.C. On October 19, 1921, he was designated as Officer in Charge of all records referring to litigation on war contracts for or against the government.

Colonel Volandt served as a member of the Around-the-World Flight Committee, during 1924, in connection with the handling of financial matters related thereto, and he received the official commendation of the Chief of the Air Corps for the thoroughness of his work.

Transferred to Bolling Field, D.C., in June, 1924, Colonel Volandt served at various times as Supply Officer, Consolidated Mess Officer, Post Exchange Officer, Adjutant and Personnel Adjutant until June, 1925, when he was assigned to McCook Field, Dayton, Ohio, for duty as Contracting Officer of the Engineering Division. He was stationed at this field and later at Wright Field, Dayton, Ohio, until August 13, 1928, and was then transferred to the Philippine Department, where he was on duty at the Philippine Air Depot at Nichols Field as Purchasing and Contracting Officer for the Air Corps in the Philippine Department until July 1, 1930.

Upon his return to the United States, he was, on September 26, 1930, assigned to the Finance Division, Office of the Chief of the Air Corps, Washington, D.C., as Assistant Chief and later as Chief of that Division, also Fiscal Officer.

Colonel Volandt at various times received official commendation for the efficient and thorough manner in which he handled the duties of his office. He was transferred to his present station, Wright Field, in November, 1934, and was appointed Purchasing and Contracting Officer for the Air Corps at the Materiel Division. He served as Assistant Chief of the Procurement Section of the Materiel Division until July 1, 1937, when he was appointed Chief of that Section.

Colonel Volandt was commissioned in the Air Service, Regular Army, as a Captain, October 1, 1920, to rank from July 1st of that year. He was promoted to Major on October 1, 1930, and to Lieut. Colonel (temporary) June 16, 1936.

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LIEUT. COLONEL ERNEST CLARK

Lieut. Colonel Ernest Clark, Air Corps, now on duty as Air Officer of the 3rd Corps Area, Baltimore, Md., was bor at Terre Haute, Ind., December 13,1884.

For a period of three years from Marc 15, 1899, he served as an enlisted man in the 10th U.S. Infantry, being discharged as a Sergeant. Reenlisting on July 31, 1902, he was assigned to Company G, 20th Infantry, and he served therewith until discharged by purchase, as a Corporal, August 24, 1903. While with the Infantry, he saw service in Cuba.

From 1907 to 1917, Colonel Clark served with the Indiana National Guard, being commissioned a second lieutenant on February 24, 1908, and promoted to

1st Lieutenant on December 30, 1914. He was on duty as aide-de-camp to Brigadier General E.M. Lewis, the Commanding Officer of the Indiana Brigade, from July 15, 1916, to February 1, 1917, at which time this brigade was in the Federal service on the Mexican Border.

In March, 1917, Colonel Clark was authorized by the Militia Bureau at Washington, D.C., to take the course in aviation at the Signal Corps Aviation School at Rockwell Field, San Diego, Calif. He completed this course and qualified for the rating of Junior Military Aviator in July, 1917..

He received appointment as temporary 1st Lieutenant, Signal Corps, U.S. Army, on November 14, 1917, and was officially rated as Junior Military Aviator on the same date. He continued on duty at Rockwell Field, serving as Assistant to the Officer in Charge of Flying until his transfer to March Field, Riverside, Calif., for duty as Officer in Charge of Flying. While on duty at Rockwell Field, he established the auxiliary flying field at Otay Mesa, then known as "East Field," and had direct charge, and was responsible for, all flying at this field.

At March Field, Colonel Clark not only established the course of flying instruction thereat, but made an enviable record in having given 28,000 hours of instruction to flying cadets without a fatality.

In March, 1919, Colonel Clark assumed the additional duty of commanding officer of the Flying School Detachment, and for a number of months he also served as Executive Officer of the field. During the summer months of 1920 he was in charge of Forest Fire Patrol operations.

Transferred to Chanute Field, Rantoul, Ill., in April, 1921, Colonel Clark was stationed at this field until October 6, 1927. During this period, his duties were varied in character. He commanded the Air Service Technical School Detachment, was Executive Officer of the field, Intelligence Officer, Provost Marshal, Post Operations Officer, Engineering Officer and Meteorological Officer. For a number of years he commanded the 15th Observation Squadron.

At his next station, Langley Field, Va., Colonel Clark was Post and Wing Operations Officer, Post Airways Officer, and Post Information Officer to July, 1928. He was then assigned to the command of the 59th Service Squadron, 2nd Bombardment Group. For several months he was in temporary command of the 2nd Bombardment Group.

Transferred to Bolling Field, D.C., in February, 1929, he was placed in command of the Air Corps Detachment thereat. For brief periods he served as Executive Officer and Commanding Officer of the Field.

In June, 1931, Colonel Clark arrived in the Hawaiian Department and assumed command of the 18th Pursuit Group at Wheeler Field, Schofield Barracks, T.H. He served in the Hawaiian Department for a period of over four years and, in November, 1935, he reported for duty with the 1st Pursuit Group at Selfridge Field, Mt. Clemens, Mich.

On March 19, 1937, he began his present duties as Air Officer of the 3rd Corps Area at Baltimore, Md.

Colonel Clark was commissioned a Captain in the Air Corps, Regular Army, on September 23, 1920. He was promoted to Major on March 1, 1931, and to Lieut. Colonel (temporary), March 12, 1935. He held this temporary rank until September 3, 1935, and was reappointed to this temporary rank on June 22, 1936.

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23RD BOMB. SQUADRON GOES INTO THE FIELD

The 23rd Bombardment Squadron, Luke Field, T.H., after a rousing Fourth of July celebration, initiated field activity for the 5th Composite Group for the new fiscal year by moving to Bellows Field on July 6th for two weeks' field duty. With all of the Keystone airplanes of Luke Field assigned to them, the Squadron made short work of the move across the Island of Oahu.

The camp started off in the rain, but after a day or two of wet weather, ground gunnery activities really got under way. The Squadron Armament Section had preceded the main body and had the pistol and the 1,000-inch machine gun range all set up with enough targets made to last during the period of the camp.

Although all planes flew all morning, the main activities of the camp centered around the gunnery ranges. During the period of the encampment every man in the squadron completed firing the pistol course, the machine gun course on the 1,000-inch range, and the anti-aircraft firing at two targets. In addition to the Squadron's ground gunnery, crews for airdrome defense were given a comprehensive practical course in the setting up and operation of the ground machine gun.

On July 19th, the Squadron regretfully broke camp and headed by air and motor transport back to Luke Field - its first phase of training in the new fiscal year completed.

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GENERAL DRUM LEAVES THE HAWAIIAN DEPT.

"It was with deep regret," says the News Letter Correspondent of the Hawaiian Air Depot, "that the Depot bade Aloha to Major General Hugh A. Drum, who sailed for the mainland on July 30th. The General was very much 'air-minded' and will be long remembered for his work in building up the Air Corps in this Department."

THE TRANS-POLAR FLIGHT TO THE UNITED STATES BY THE RUSSIAN AVIATORS

Although much has appeared in the press in this country regarding the recent flight of the Russian aviators Gromov, Yumashev and Danilin from Moscow to the United States, via the North Pole, it is believed News Letter readers will be interested in reading another account of the flight which appeared in the weekly edition of the "Moscow News" of July 21st. This newspaper is printed in the English language for the English-speaking people in the Soviet Union and throughout the world. The account of the flight in this newspaper is as follows:

'The shortest air route between the USSR and America, by way of the North Pole, has again been covered by an ANT-25 plane, its crew headed this time by Hero of the Soviet Union M.M. Gromov, and with Major A.B. Yumashev as second pilot and S.A. Danilin as navigator.

The airplane left Moscow July 12, at 3:21 a.m. Moscow time, and landed in San Jacinto, California, July 14. It was in the air 62 hours, 17 minutes. The distance between the starting point and the point of landing exceeds 10,200 km.; the distance covered by the plane is equal to approximately 11,500 km. Thus the ANT-25 has broken the world long-distance record.

The route was as follows: Moscow - Kolguyev Island-Cape Stolbovoi (Novaya Zemlya) - Franz Josef Land - North Pole - Patrick Land - Banks Land. From there the plane flew along the 120th meridian over Canada, crossing the Rocky Mountains to the Pacific Coast via San Francisco and Los Angeles, and landing near the town of San Jacinto (California) midway between Los Angeles and San Diego.

During the flight the airplane flew more than 5,500 km. over oceans, seas and ice.

The plane left Moscow under favorable meteorological conditions, but beginning with Zagorsk flew above dense clouds and fogs and was twice forced to pass through heavy cloud banks, flying blind at times. Over the Kara Sea, the weather cleared up. However, beginning with Franz Josef Land, the airplane flew over fogs and unbroken clouds and crossed a cyclone in the region of the 85th and 86th parallels, piercing the clouds at a great altitude, and flying blind. The plane emerged from the cyclone in the region of the North Pole. Up to the North Pole the airplane encountered head winds with a velocity of 30 to 40 km. an hour.

Clouds and Fogs

From the North Pole to southern California, the airplane flew under favorable weather conditions and with accompanying winds. Flying to the Rocky Mountains along the 120th Meridian, it crossed them amidst thick clouds and heavy rains. When ice began to crust the airplane, it sharply changed its course and emerged on the Pacific Coast. Thereupon the flight continued under conditions of unbroken clouds and fogs right up to Los Angeles.

The same constructors, engineers, mechanics and motor specialists who prepared Valery Chkalov's* plane put Gromov's into condition. All the work at the airdrome was under the supervision of engineer E.K. Stoman, with a special staff headed by V.I. Chekalov in charge of all arrangements for the flight.

'A special fuel for the motor, which was built and prepared for the flight at the Frunze Plant, was worked out at the Central Institute of Aviation Motor Construction,' Chekalov pointed out. 'Plants of the All-Union Precision Instruments Trust manufactured and supplied the airplane with the latest aero-navigation instruments.'

In preparing the second ANT-25 plane, the experience of Chkalov's flight was taken into consideration. The airplane was somewhat lightened by means of interior re-equipment and, chiefly, by replacing certain metal with lighter metal or wood. The oxygen supply on Gromov's plane was treble that carried by Chkalov. A much larger quantity of anti-freeze liquid, used to prevent the formation of an ice crust on the propeller, was taken.

Radio communication between the plane and the earth were organized in a new way, Chekalov stated. On the territory of the Soviet Union, the messages from the ANT-25 plane were received by about 20 polar stations and all vessels in the White and Barents seas and the Arctic Ocean. All these stations immediately relayed the information received from the plane to the central short wave station situated near Moscow. This was the only Soviet radio station authorized to maintain direct communications with the ANT-25 and to transmit information to it.

The powerful Comintern Station, operating on long waves, was also prepared, in an emergency, to contact the plane at five minutes' notice from the staff of the flight. The radio station on Dickson Island worked simultaneously with the central station. This was arranged so that should complications arise in the central station's receipt of transmission, the plane would still be insured of the necessary weather information.

Radio stations situated on the territory of Canada and the United States received reports from the plane and immediately relayed them to two central stations situated in Anchorage (Alaska) and Seattle (USA). Only these two stations were authorized to maintain direct two-way communications with Gromov's plane.

Radio communications between America and the USSR were organized in a new fashion, with radio-telephone communications between Nome and Anadyr and also between Seattle and Khabarovsk to be established in case of emergency. Such communication would have made it possible for Moscow to receive very rapidly the necessary information on the movement of the plane. In addition, radio-telephone communications between Moscow and America were established.

'Our meteorologists carried out a great deal of work in drawing up exact weather charts and in supplying the crew with all necessary information on the weather enroute,' said Chekalov. 'They made careful observations of the weather in the Central Polar Basin, and studied it for a considerable time along the entire route. They received much assistance in this matter by the drifting polar station near the North Pole.

The flight of Gromov, Yumashev and Danilin

undoubtedly provides valuable new material for the study of the great air route between the USSR and North America,' he concluded."

*Ed Note: V.P. Chkalov, G.F. Baidukov and A.V. Belyakov blazed a non-stop sky trail from Moscow over the North Pole to the United States and landed at Vancouver, Washington, on June 20th, last.

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THE RUSSIAN ANT-25 AIRPLANE

In the same issue of the "Moscow News," in which the previous article appeared, there is also an article by Aviation Engineer E.K. Stoman, describing how the ANT-25 was evolved into the present record-breaking airplane. Mr. Stoman says:

"Five years have passed since the ANT-25 plane made its first appearance at the testing station. I remember this machine as it first took to the air. Its flying qualities have been perfected under my supervision. I was charged with preparing the ANT-25 for long-distance flights. I am acquainted with every detail of the history of this splendid airplane, which has made Soviet aviation famous throughout the world. In the last five years, the machine has gone through a complex period of technical improvement and has been changed almost beyond recognition. Only the strong "bones" of the skeleton of the former ANT-25 have remained and nothing else.

One recalls with a smile the amount of trouble we had with the radiators, which were once placed in the wings of the plane. For a long time the engineers worried their heads off trying to improve the system of cooling the motor. In the end it was decided to dispense with wing radiators altogether, replacing them by a single honeycomb radiator installed in the tunnel next to the motor.

The conduct of the heavily laden machine in taking off was, as yet, a total enigma to us. Technical literature furnished very little material on this question. In foreign magazines we found many reports of unsuccessful attempts of overloaded machines to take off, but few reliable calculations as to how to take a machine into the air with safety.

After making a series of cautious experimental take-offs, we found the key to the solution of the problem. It turned out that the take-off of a heavily loaded machine requires exceptional foresight. The plane runs for a long time along the runway, slowly picks up speed and is difficult to control while on the ground. It wiggles and tries to jump off the runway - this means an inevitable crash. The most unexpected surprises may be in store. A crash may occur owing to the fact that the air pressure in one of the wheels of the landing gear is greater than in the other. If the bearings in one of the wheels are subject to greater friction than in the other, disaster may follow. Unevenly pumped air and oil shock-absorbers also present a danger. It was necessary to regulate the wheels of the landing gear and the back wheel in such a way that the machine, at least during the first 300 or 400 m., should drive along the runway with ideal accuracy.

The secret of the take-off of the ANT-25 has now been finally solved. Chkalov and Gromov made perfect starts.

Aviation technique has accumulated much theoretical experience which makes it possible quickly and surely to pick out a propeller with the highest coefficient of efficiency. But all the customary calculations proved to be unacceptable in the choice of a propeller for the ANT-25. Propellers suitable for taking off were found not to be sufficiently good in flight. On the contrary, propellers which worked efficiently in the air were inefficient in taking off. But long experiments with dozens of propellers of various types finally brought success.

In its 'youth,' the ANT-25 was a very capricious machine to control. Gromov, who tested it, had his hands full and more than once was in danger. A number of parts had to be replaced before the plane finally acquired stability and became comparatively easy to control.

The tanks still have room for more gasoline than is taken for long-distance flights. About two tons more could be poured into them, but this is made impossible by the insufficient power of the motor. If not for the motor, the distance of a flight by the present ANT-25 could be extended to perhaps 14,000 km. instead of the original 7,500 and the present 12,000 to 13,000 km.

The first serious test undergone by the ANT-25 was the 75-hour flight made by Gromov, Filin and Spirin over a closed circuit in 1934. This flight, which was actually a world record, finally convinced the designers of the correctness of their calculations. Nevertheless, the machine at that time still had a number of serious defects.

The cabin of the plane in which Chkalov, Baidukov and Belyakov flew to the United States and the cabin of Gromov's plane were completely reequipped this year. Air-heating apparatus was installed. Warm air enters the cabin, heating and ventilating it. Air-proof partitions were also installed to prevent cold air from entering the cabin from the wings.

For the first time in the history of Soviet aviation, an anti-freeze liquid was placed on the propeller of Chkalov's plane this year. The formation of an ice crust on the propeller is particularly dangerous. It destroys the balance of the blades and serves as the prime cause of motor vibrations. It is sufficient for one of the blades to become 20 grams heavier than the others in order to upset the work of the propeller and motor system and cause disaster.

According to information received from Chkalov, the anti-freeze substance on the propeller was extremely useful. But the amount of anti-freeze (a liquid which the apparatus sprays over the surface of the blades through thin tubes) was insufficient. Gromov's machine was equipped with 30 liters of anti-freeze. The apparatus uses up only three drops a second. According to the most moderate calculations, the quantity of anti-freeze should have its effect for over two consecutive hours.

A very complex problem was presented by the distribution of the numerous air navigation in-

struments and control gauges. In Gromov's plane 23 different instruments are mounted on a single board in front of the first pilot. The total number of instruments carried by the plane is 50.

It is doubtful whether any other single-motored plane has as many instruments. In the ANT-25, literally every known aviation instrument in the world has been assembled. With each new flight the machine receives some new equipment. Incidentally, I recall that in 1934, when Gromov made his flight over a closed circuit, there was only one instrument on the plane for fixing its course, namely, a magnetic compass. What strides our industry producing air navigation instruments have made since then!

Chkalov, Baidukov and Belyakov in their conclusions on the flight to America referred to the insufficient supply of oxygen, although it was double their supply on the Arctic flight last year. For this reason a vessel containing liquid oxygen was put on Gromov's plane in addition to balloons containing compressed oxygen. We believe such an apparatus began to be used in America. In European aviation practice, liquid oxygen is still little known. The vessel looks like a samovar, which is what we have named it. It is enough to open the tap in order that the liquid oxygen be converted into gas, and pass through a common pipe to the tubes and individual masks of the flyers. The quantity of oxygen carried by Gromov's plane was sufficient for 24 hours' flight in rarefied air.

The work of the radio set largely determines the success of a long flight over the Arctic. After last year's flight, Chkalov and his crew came to the conclusion that the radio apparatus was adversely affected by the electric disturbances caused by the system of fuel ignition in the motor cylinders. The work of the magneto caused a loud crackling in the receiver. In some cases reception was impossible. Now these interferences have been eliminated; the entire system of fuel ignition has been carefully screened off by a complete metal envelope. The quality of the radio contact - this has been confirmed by Chkalov's flight to the United States - has greatly improved.

Rubberized balloons, filled with air, in order to enable the airplane to float in event of a forced landing on water, were constructed. However, to the disappointment of engineer N. Lebedev, who displayed wonderful ingenuity in designing the balloons, after Chkalov's flight to the United States it appeared that there was no real need for them and they were removed from the Gromov plane. For the same reason Gromov's crew rejected the rubber life-boat.

Work on the ANT-25 has served as a splendid, I may say, incomparable school for the workers of the Central Aero-Hydrodynamic Institute, of the Institute of Aviation Motors and of the many factories which participated in preparations for the flight. Scores of designers, engineers, mechanics, physicists and chemists have enriched their knowledge. If it were necessary now to build an airplane for long-distance flights, there can be no doubt that it could be made to have a radius of 20,000 km. (12,427 miles). I am convinced that the new Soviet airplane for long-distance flights will be unquestionably a monoplane with a low wing of great length. The plane will carry two motors. In speed, it will considerably exceed the ANT-25, and it must be ideally suited for flights at an altitude of 6,000 to 8,000 meters. The cabin will, apparently, have to be sealed hermetically. The experience gained by our industry in the construction of cabins for stratostats will be of great use to aviation.

In such a plane Soviet flyers will be able to make a round-the-world flight with a single stop. I can foresee new victories for Soviet aviation in the struggle for long distance flights."

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THE ENGINE IN THE RUSSIAN ANT-25 AIRPLANE

Having shed some light on the airplane used by the Russian aviators in their flight from Moscow to the United States last July, it may be of interest to learn something regarding the motor with which this plane was powered - the AM-34.

The constructor of this motor, A.A. Mikulin, writes as follows in the issue of the "Moscow News," previously referred to:

"For many years, inventors have suggested numerous diverse and often quite eccentric designs for airplane motors which, it would seem, might prove to be a turning point in the technique of motor construction. Motors with all possible arrangements of the cylinders have been proposed: In the form of an X, a square, a triangle parallel to the shaft, and so on. However, not one of these ideas proved to be of any value. The main path of development in world motor construction is still the fan or star-shaped arrangement of the cylinders.

After watching the development of the foremost firms in the world, such as the Rolls-Royce in England, Curtiss-Wright in America, Hispano-Suiza in France, and after analyzing their methods of work, we find it evident that these basic types have been in the process of being constantly improved upon.

One of the new units added to the motors during their modernization in recent years is the impeller, which makes it possible to raise the power of the motors 50 per cent at an altitude of 3,000 to 4,000 m., and thus increase the speed of the plane at this height by about 15 per cent.

The motor AM-34 is entirely of Soviet make and incorporates the leading principles in world airplane motor technique. It was designed in 1930 by a group of engineers of the Airplane-Motor Research Institute.

A great amount of research work on the combustion of fuel in the cylinders and also the action of the various parts preceded the designing of the motor.

The design included very far-sighted construction ideas, which were developed over a period of six years and mastered at the plant for serial production. This resulted in a constant increase in the power, endurance and reliability of this motor.

The motor has demonstrated its qualities in

a number of record flights, including the non-stop flight of M.M. Gromov, Hero of the Soviet Union, over a closed circuit for 75 hours, the Arctic flight of V.P. Chkalov, G.F. Baidukov and A.V. Belyakov in 1936, and their recent flight from Moscow to North America, and the present flight of Gromov.

Besides its dependability, the AM-34 motor, because of the special arrangement of its parts, is very economical, in contrast to a number of modern motors of its class. Whereas an average fuel expenditure of 240 grams per hp. per hour is considered normal, the AM-34 consumes only 200-205 grams per hp. per hour. This small fuel expenditure is combined with very great power, which exceeds 1,000 hp.

One of the parts of the AM-34 which is an obligatory installation is a special device against ice-formation during flights in the Arctic.

Following a unified Government program, a number of research institutes are working upon the task of further improving the AM-34. Many institutes are engaged in a study of new sorts of high-quality fuels and selective lubricating oils."

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91ST OBSERVATION SQUADRON ACTIVITIES

According to the News Letter Correspondent from Fort Lewis, Wash., the "Fog Busters" of the 91st still carry on in the great northwest. "Thanks to early training in the Golden Gate Fog Belt at old Crissy Field, the weather conditions here were not so disconcerting to our personnel on transfer to this station," he says, and he then adds: "Our records for the fiscal year 1937 show a loss of 57½ scheduled flying days because of weather. Present-day airplanes and instruments allow for take-offs, landings, and flights in inclement weather, but 14,000-foot mountains, 200-foot pine trees, 100-foot ceilings, and 500-foot visibility do not result in 100% completed observation missions.

Despite the handicap of lots of bad weather, the organization flew a total of 5,384 hours during the year, an average of 365 hours per pilot. Cooperative missions accounted for 1,231 hours of the total.

The fiscal year's flying was consummated at Port Angeles, Washington, when the Squadron fired its tow-target aerial gunnery over the Straits of Juan de Fuca. There was a lot of fishing done during off duty hours but few fish brought into camp. Colonel F.E. Galloway, on his first venture after "Salar" the salmon, managed to bring a 33½ and a 28-pounder to gaff. If there were any larger fish caught, they were not displayed in camp, as no one dared outdo the C.O.'s record.

Flying during the month of July was in fulfillment of War Department Training Directive. Missions during August are in preparatory training for the 4th Army Maneuvers to be held at Fort Lewis August 17-31, at which time there will be a concentration of approximately 14,000 Regular Army, National Guard, and Organized Reserve troops.

Lieut. Colonel Charles B. Oldfield is in command of air activities at Fort Lewis, and Major Guy L. McNeil commands the 91st Observation Squadron.

Lieut. Colonel Floyd E. Galloway departed on August 4th for the Command and General Staff School at Fort Leavenworth. The entire command regrets his departure from this station.

A ground and aerial review for the recently arrived 3rd Division Commander, Brigadier General Alfred T. Smith, was held on August 6th.

The Air Corps personnel at this station extend an invitation to all airways transient flyers to drop in and visit us."

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AIR CORPS OFFICERS ON GEN. STAFF ELIGIBLE LIST

In the recently published list of Army officers who have been placed on the General Staff Corps eligible list, the names of the following Air Corps officers appear, viz:

Lieutenant Colonels	
Crom, William H.	McClelland, Harold M.
Howard, Clinton W.	Sorenson, Edgar P.
Kepner, William E.	
Majors	
Cannon, John K.	Hough, Romeyn B.
Clark, Harold L.	Kiel, Emil C.
Davidson, Joseph H.	Larson, Westside T.
Eaker, Ira C.	Tooher, Bernard J.
Fairchild, Muir S.	Upston, John E.
Gaffney, Dale V.	Vanaman, Arthur W.
George, Harold L.	Waller, Alfred E.
Gothlin, Oliver P., Jr.	Wolfe, Kenneth B.
Halverson, Harry A.	
Captains	
Caldwell, Charles H.	Old, William D.
Chidlaw, Benjamin W.	Oliver, Robert C.
Crawford, Alden R.	Quesada, Elwood R.
Cumberpatch, James T.	Shea, Augustine F.
Douglass, Robert W., Jr.	Snavely, Ralph A.
Dulligan, John H.	Thomas, Charles E., Jr.
Fair, Ford L.	Twining, Nathan F.
Ferguson, Homer W.	Weikert, John M.
Ferris, Carlisle I.	Whitten, Lyman P.
Mayhue, Don W.	Williams, Robert B.
Moon, Ernest S.	

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AIR RESERVE OFFICERS PLACED ON ACTIVE DUTY

The following-named second lieutenants of the Air Reserve have been placed on active duty at the Air Corps stations indicated for a period of three years, viz:

Frank Phipps Smith, Clarksdale, Miss., to Mitchel Field, N.Y., to August 24, 1940.

Joseph Adolph Brier, Riverside, Calif., to Moffett Field, Calif., to August 24, 1940.

Follett Bradley, Langley Field, Va., to Barksdale Field, La., to August 24, 1940.

John Holliday Catchings, Atlanta, Ga., to Barksdale Field, La., to September 1, 1940.

Le Grand Justin Mercure, South Rockwood, Mich., to Randolph Field, Texas, to September 9, 1940.

Joseph Samuel Morris, Waycross, Ga., to Randolph Field, Texas, to September 9, 1940.

Hugh O'Daniel, Louisville, Ky., to Randolph Field, Texas, to September 9, 1940.

The Effect of Flight on the Middle Ear
(Continued from Page 2)

open or blocked. Those who have a blocking of the tube should be examined for chronic infection of the ear, sinuses, nose and Pharynx, the mouth of the tube inspected for mechanical obstructions and the eustachian tube catheterized, if necessary. When any of these conditions are found and corrected, it is likely that the tube will become normal. Persons examined during periods of an acute infection of the upper respiratory tract should be re-examined after the infection has subsided before a final decision is made.

Probably the most useful prophylactic measure in all cases is proper instruction of the individual concerned. As long as the open condition of the eustachian tube is under voluntary control there is no reason why any person in command of his faculties need experience difficulty at any rate of ascent or descent possible in present commercial aircraft. A simple explanation of the functioning of the eustachian tube, followed by instructions as to how to ventilate the middle ear, when to ventilate it and how frequently this is necessary should suffice. Probably the simplest maneuver to actuate the normal eustachian tube is to swallow. It may also be accomplished by yawning, by singing, by shouting, by autoinflation and by contracting certain of the throat muscles. The last named defies description and can be learned only by practicing the suppression of a simulated yawn, at which time a roaring in the ears will indicate when the effort is successful.

Since the average person swallows involuntarily about every sixty to seventy-five seconds, it can be seen that a rate of climb or descent of 200 feet per minute will usually cause no discomfort, 500 feet per minute slight discomfort and 1,000 feet per minute moderate discomfort even though no effort is made to ventilate the middle ear artificially. Descents above 4,000 feet per minute may catch an individual unaware and create a vacuum of the middle ear which it is impossible to relieve by any method except a return to higher altitudes.

Chewing gum, eating, drinking or inhaling oxygen reduces swallowing to intervals of from one to thirty seconds. Sleeping and comatose individuals swallow at increased intervals and present a serious problem.

The allowable rate of ascent and descent of commercial airplanes is set by the Department of Commerce at 300 feet per minute, and some such companies limit themselves to 200 feet per minute, although unusual conditions such as weather may require that both of these rates be exceeded to insure the safety of the flight. Those who are suffering from either temporary or permanent blocking of the eustachian tube should be enjoined from flying except under controlled conditions of gradual changes of altitude through a maximum range not to exceed 2,000 feet. Those with an acute infection of the upper respiratory tract who insist on aerial flights should be prepared by gargling hot salt water or by having an oil spray directed well back into the nasopharynx, followed by the instillation or inhalation of atropine, ephedrine or benzedrine compounds.

SUMMARY

A new clinical entity is presented which consists of a traumatic inflammation of the middle ear caused by a pressure difference between the air in the tympanic cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, tinnitus and deafness."

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RANDOM NOTES

The 33rd Pursuit Squadron, Langley Field, Va., is sending five pilots along with the 8th Pursuit Group to the Cleveland Air Races, and each morning finds 18 PB-2A's busy with aerial work. The Scribe of the 33rd says: "We hope to do our part in making the Air Show a big success and look forward to an enjoyable trip."

Announcing that the matrimonial flurry which recently struck the 37th Attack Squadron, Langley Field, claimed another victim lately when Lieut. Earl Willoughby returned from a two weeks' leave in California with a Los Angeles bride, the News Letter Correspondent adds that "This will, no doubt, cut Lieut. Willoughby's cross-country time down to a minimum this fiscal year, since his cross-country now will have to be approved through two different headquarters."

"It has been reported," says the News Letter Correspondent of the Hawaiian Air Depot, "that pilots at Luke and Wheeler Fields are considering the formation of an association of 'goon-dogglers.' The members will be those privileged to take the goons, C-33's to you, from here to there and return. Now if we can get a 'Jeep' and a couple of Windmill Salesmen, we will be on a par with any organizatio in the United States."

Majors (temp.) Neal Creighton and Alonzo M. Drake, Air Corps, were promote to the permanent rank of Major, to date from August 3rd and August 7, 1937, respectively.

OBITUARIES

Air Corps personnel were greatly shocked at the untimely and tragic death of Colonel Wm. C. McChord, Air Corps, and his passenger, Staff Sergeant Michael J. O'Connell, as the result of an airplane accident at Maidens, Va., 29 miles west of Richmond, on the morning of August 18th, last. Colonel McChord, piloting an A-17 Attack plane, was en route from Bolling Field to Randolph Field, Texas, and was apparently trying to make a forced landing when the accident occurred.

To the Air Corps in general, Colonel McChord's death constitutes a distinct loss, and those who knew him well realized fully his ability and professional attainment and admired the initiative, independent thought and frank expression of opinion which characterized his service and which led his brother officers to rely so much upon his experience and helpful advice.

A native of Lebanon, Ky., where he was born December 29, 1881, Colonel McChord had been affiliated with aviation since the World War. Previous to that time he served with the Cavalry, in which branch he was commissioned a second lieutenant on June 14, 1907, following his graduation from the U.S. Military Academy. He received his flying training at Rockwell Field, Calif., and was rated a Junior Military Aviator, May 31, 1918. After completing a course in Bombardment Aviation at Ellington Field, Houston, Texas, and commanding for brief periods of time Park Field, Tenn., and Gerstner Field, La., he was transferred in March, 1919, to the Office of the Director of Air Service, Washington, D.C., where he served in various capacities, such as duty in the Finance Section of the Supply Group, as a member of the Air Service Claims Board, as Assistant to the Chief of the Materials Disposal and and Salvage Division of the Supply Group, and as Assistant to the Chief of the Property Division of the Supply Group.

For a period of two years, from July, 1920, Colonel McChord served as Air Officer of the Central Department (later the 6th Corps Area). He then completed the course of instruction at the Air Corps Tactical School and the Command and General Staff School. He then commanded Chanute Field, Ill., and was Commandant of the Air Corps Technical School at that field until early in 1928, when he was transferred to the Advanced Flying School, Kelly Field, Texas, where he completed the Special Observers' course, receiving the rating of "Airplane Observer" as of June 25, 1928.

Following his graduation from the Army War College, Washington, D.C., Colonel McChord served as Instructor at the Command and General Staff School for four years. He was then transferred to the Panama Canal Department for duty as Commanding Officer of the 19th Composite Wing. In October, 1935, upon the completion of his foreign service tour, he was assigned to duty in the Plans Division, Office of the Chief of the Air Corps, Washington, D.C. Later, he was assigned as Chief of the Training and Operations Division.

Funeral services for the deceased Air Corps officer were held on the afternoon of August 20th at the Chapel at Fort Myer, Va.

Staff Sergeant Michael J. O'Connell, Air Corps, a native of New York City, was born on March 2, 1900. He enlisted in the Army on August 16, 1919, and served with the 15th Cavalry to July 27, 1921, and with the 3rd Cavalry to March 13, 1925. Reenlisting a week later, his Army service since that time was with the Air Corps. He served with the 1st Observation Squadron to November 5, 1929, when he purchased his discharge. He enlisted again on July 9, 1930, and was stationed at Bolling Field, D.C., until the date of his death. He was appointed Corporal in December, 1930; Sergeant in July, 1931, and Staff Sergeant in June, 1937. In April, 1927, he graduated from the Engine Mechanics Course at the Air Corps Technical School at Chanute Field, Ill.

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on August 24th, 2nd Lieut. Robert C. Wood, of Haynesville, La., a member of the Air Corps Reserve, and Flying Cadet Frank Fisch, a student at Randolph Field, and who hailed from Mansfield, Ohio, were instantly killed when the training ship in which they were flying crashed in flames two miles north of Schertz, Texas.

Lieut. Wood was born November 3, 1911, at Pine Bluff, Ark. He graduated in 1931 from the Monticello, Ark. A. & M. College; attended Ouachita College, Arkadelphia, Ark., for half a year, and graduated from the Louisiana College, Pineville, La., in 1935, with an A.B. degree. For a period of two years he was a member of the 156th Infantry, Louisiana National Guard.

Appointed a Flying Cadet in the Air Corps, he completed the course at the Primary Flying School, Randolph Field, Texas, October 15, 1935, and the advanced course at Kelly Field, Texas, on February 15, 1936, when he was rated an "Airplane Pilot" and assigned under his Cadet status to duty with the 77th Pursuit Squadron at Barksdale Field, La. On March 1, 1937, he was appointed a second lieutenant in the Air Reserve, and he remained at Barksdale Field until June 18th, last, when he was transferred to Randolph Field, Texas, for duty as Flying Instructor.

Flying Cadet Frank Fisch was born at Chicago, Ill., August 6, 1914. He attended Newman School and Mansfield, O. High School (1920-1932) and the Ohio State University, Columbus, Ohio, for four years. Receiving an appointment as a Flying Cadet in the Air Corps, he began his training at the Primary Flying School, Randolph Field, Texas, in March, 1937.

Cadet Fisch was a member of the varsity football squad, Ohio State University, for three years.

The sincere sympathy of the Air Corps is extended to the bereaved families of these who lost their lives in the service of the country.

BRANCH AIR CORPS TECHNICAL SCHOOL AT DENVER

The Army Housing Bill, which authorizes among other things the establishment at Denver, Colorado, (at the Phipps Memorial Sanitarium) of a branch of the Air Corps Technical School, Chanute Field, Rantoul, Ill., was signed by the President on August 27th. A War Department announcement states that it is expected the necessary funds for putting this authorization into effect will be contained in an early appropriation act.

Detailed plans are now being made to provide for the inauguration of courses in armament and photography at this school. While courses cannot begin until funds are appropriated, plans can now take definite shape for the move so that when funds become available prompt action may be taken to prepare students of the branch school at Denver to fill the vacancies now existing for skilled mechanics in the Air Corps tactical units.

In the near future it is expected that the War Department will move a few officers and soldiers from other stations to this new school at Denver to begin the rehabilitation of the existing buildings.

As soon as adequate facilities have been constructed at the new location, the Departments of Photography and Armament, including students and instructors now at the Air Corps Technical School at Chanute Field, will be transferred to Denver, and a corresponding increase made in the number of instructors and the number of students in the other courses remaining at Chanute Field, so that that field will remain at its maximum operating capacity.

The establishment of the branch of the Air Corps Technical School at Denver will not decrease the size of the Technical School at Chanute Field, Rantoul, Ill. The increase in the number of students in the departments which remain at Chanute Field will enlarge the present school despite establishment of the branch. The increasing demand for trained specialists in the Army Air Corps makes necessary the establishment of the branch school. World War military planes could be adequately maintained by a small crew of two or three technicians. Such planes were powered generally with but one engine, carried not more than two machine guns and only five or six instruments. Some of the largest modern Army planes call for a greatly increased crew of skilled technicians, if such planes are to operate effectively.

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MASTER SGT. MAYLON APPOINTED WARRANT OFFICER

Master Sergeant Charles Maylon, probably one of Bolling Field's oldest inhabitants, in point of service at that field, received an appointment as Warrant Officer, U.S. Army, effective September 1, 1937. Since January, 1919, his service at Bolling Field has been continuous, save for a tour of duty in the Hawaiian Department.

Sergeant Maylon was born at Gordonsville, Va., April 25, 1891. He enlisted in the regular army on September 24, 1912, serving with the 29th Infantry for three years and being discharged with character "Excellent." As a matter of fact, all of his subsequent discharges bore that notation. He saw service in Panama from March, 1914, to September, 1915. Reenlisting in June, 1916, he was assigned to the General Service, Infantry. In September, 1918, he was assigned to the 864th Aero Squadron at the Air Service Mechanics School at St. Paul, Minn., and was appointed to the grade of Sergeant. Later, on November 25, 1918, he was appointed Sergeant, 1st Class. He received his appointment as Staff Sergeant on July 1, 1920, and as Master Sergeant on September 23, 1920.

Sergeant Maylon was transferred to Bolling Field, D.C., on January 14, 1919, where he served successively with the 312th, 99th, 10th, and again with the 99th, squadrons; the 18th Headquarters Squadron; the Air Corps Detachment the GHQ Air Force, the Station Complement, and his present organization, the 14th Air Base Squadron. During his service in the Hawaiian Department in 1933 and 1934, he was on duty with the 5th Composite Group at Luke Field and later with the 18th Composite Wing Headquarters at Fort Shafter.

Sergeant Maylon holds a commission as a 2nd Lieutenant in the Quartermaster Corps Reserve.

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The following noncommissioned officers of the Air Corps are slated for retirement on August 31, 1937:

Master Sergeant Monroe Reynolds, Randolph Field, Texas.

Technical Sergeant Henry G. Hayes, Fort Lewis, Washington.

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CHANGES OF STATION OF AIR CORPS OFFICERS

To Brooks Field, Texas: Major William C. Morri from Randolph Field.

To Maxwell Field, Ala.: Major Arthur J. Melanson from Langley Field.

To Fort Lewis, Wash.: Major Charles M. Savage from Rockwell Air Depot, Calif.

To Fort Bragg, N.C.: Major Neal Creighton from Scott Field, Ill.

To Panama Canal Department: Captain Henry G. Woodward from Wright Field, Ohio.

Major Charles A. Horn has been relieved from further assignment and duty with the GHQ Air Force, Mitchel Field, N.Y., and assigned to duty as Commanding Officer of the 97th Observation Squadron at that field.

Effective August 19, 1937, the following Air Corps officers were promoted to the temporary rank indicated:

Lieut. Colonel Fred H. Coleman to Colonel.
Major Orlo H. Quinn to Lieut. Colonel.
Captain George W. Goddard to Major.

2nd Lieuts. Charles Garvis Holliman, Hapevill Ga., and Victor Frank Pixey, Hammond, Ind., bot members of the Air Reserve, were placed on extended active duty at Randolph Field, Texas, t September 9, 1940, as were also 2nd Lieuts. LeGrand Justin Mercure, South Rockwood, Mich.; Joseph Samuel Morris, Waycross, Ga., and Hugh O'Daniel, Louisville, Ky.